

Towns of Wellfleet and Truro, MA
Community Resilience Building Workshop
Summary of Findings
May 2019 Draft



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Community Resilience Building Workshop Summary of Findings

Towns of Wellfleet and Truro, MA

May 2019

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Wellfleet and Truro Municipal Vulnerability Preparedness Workshop

Summary of Findings

Acknowledgements

Funding to support the Wellfleet and Truro Vulnerability Preparedness (MVP) Workshop was provided by the Massachusetts Executive Office of Energy and Environmental Affairs through an MVP Planning Grant and issued to the Towns of Wellfleet and Truro during the fiscal year of July 2018 through June 2019. The Towns of Wellfleet and Truro contracted with the Cape Cod Commission to provide MVP certified staff to support the Towns in planning and facilitating the workshop.

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1. Introduction

The need for municipalities, regional planning organizations, states, and federal agencies to increase resilience and adapt to extreme weather events and climate change is evident, particularly in coastal communities. Cape Cod has already begun to experience effects of climate change and associated natural hazards, including sea level rise and extreme weather events. The strong nor'easters of 2018 unleashed a new sense of urgency to act. Massachusetts Governor Baker's Executive Order 569 aims to provide communities with technical support, climate change data, and planning tools to identify natural hazards and develop strategies to improve resilience. Following the executive order, the state created the Massachusetts Municipal Vulnerability Preparedness (MVP) program, a state program designed to increase municipality-level resilience to natural hazards being exacerbated by climate change. Through the MVP process, municipalities identify their vulnerabilities and strengths and identify opportunities to reduce risk and build resilience. Communities that complete an 8-hour MVP workshop using the Community Resilience Building (CRB) Framework, a system of facilitated discussion and note taking that the Nature Conservancy developed, become eligible to receive funding for resilience projects.

The towns of Wellfleet and Truro received a joint grant from the state to participate in the MVP program as a regional partnership. The towns sought to build on their 2017 Hazard Mitigation Plans and prior resiliency planning efforts and develop a list of priority actions to focus on in the immediate future. The towns contracted with the Cape Cod Commission, a certified MVP provider, who partnered with Cape Cod Cooperative Extension/Woods Hole Sea Grant staff, to guide them through the MVP program process and conduct a CRB workshop.

This report provides a summary of the concerns, ideas, and priorities shared by participants during the Wellfleet/Truro MVP workshop. The summary of findings described in this report, including those that concern the evolving nature of risk assessment and associated action, are compiled from workshop materials and comments, including corrections, and updates from workshop participants and Core Team members.

Workshop Planning and Core/Project Teams

The Wellfleet Health and Conservation Agent and the Truro Health and Conservation Agent served as the Towns' leads for the project. The towns assembled a group of town staff members and a National Park Service official to serve as the MVP Workshop "Core Team" to help prepare for and conduct the workshop. The Core Team included the following:

- Hillary Greenberg- Lemos, Wellfleet Health and Conservation Agent (Project Lead)
- Emily Beebe, Truro Health and Conservation Agent (Project Lead)
- Justin Post, Wellfleet Building Commissioner
- Steve Parker, Truro Town Planner
- Arozana Davis, Truro Assistant Health/Conservation Agent
- Douglas Guey-Lee, Wellfleet Assistant Health/Conservation Agent

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- Nancy Civetta, Wellfleet Shellfish Constable
- Lauren McKean, Cape Cod National Seashore Planner

The “Project Team” was comprised of Cape Cod Commission staff and Cape Cod Cooperative Extension/Woods Hole Sea Grant and included the following:

- Martha Hevenor, CCC Planner II
- Sharon Rooney, CCC Chief Planner
- Chloe Schaefer, CCC Community Design Planner
- Heather McElroy, CCC Natural Resources Manager
- Anne Reynolds, CCC GIS Director
- Erin Perry, CCC Deputy Director
- Shannon Hulst Jarbeau, Cape Cod Cooperative Extension & Woods Hole Sea Grant – Floodplain Specialist and CFM Coordinator
- Greg Berman, Woods Hole Sea Grant & Cape Cod Cooperative Extension - Coastal Processes Specialist

The Core Team and the Project Team held a kickoff meeting in January 2019 to review the project scope and discuss ways to encourage stakeholder participation at the workshop. The group also discussed workshop materials and tasks.

The Project Team was responsible for developing the workshop agenda and slide presentation, resource maps and reference materials for use in workshop discussion; workshop logistics, and facilitating and scribing group discussions. The Core Team’s responsibilities included identifying a diversity of representative stakeholders to invite to the workshop; contacting invitees to encourage attendance; and participating in the workshop as discussion scribes and stakeholders.

After the kickoff meeting, the Towns’ Project Leads determined that the workshop should be held as a single eight-hour day shared by the two Towns, rather than split into two four-hour sessions with one in each Town. They developed a meeting invitation and sent it to stakeholders on town boards and committees, elected officials, Conservation Trust members, Cape Cod National Seashore and Town staff including Harbormaster, Beach and Recreation, shellfish department, and others. The Town of Truro created a website and linked it to the invitation; the website included information about the grant and the MVP process. It provided an invitation for the public to attend, as well as a place from which to register. The website also displayed links to the Truro and Wellfleet Hazard Mitigation Plans and offered visitors a survey about climate change.

Workshop Attendees

The workshop was held on March 12 from 8 to 4 at Wellfleet’s Preservation Hall located at 335 Main Street.

42 people, about half representing each town, attended the workshop. Stakeholders represented a range of interests including Cape Cod National Seashore; each Town Select Board; Conservation Commissions; Boards of Health; Energy Committees; Police and Fire Departments; Truro Zoning Board of Appeals; Truro Planning Board; Truro Finance Committee; Truro Historical Commission; Wellfleet

Conservation Trust; Wellfleet Public Works; Wellfleet Water Commissioners; Wellfleet Shellfish Department; Wellfleet Building Department; Wellfleet Recycling Committee; Friends of the Herring River; Truro and Wellfleet Town Administration; and year-round Truro and Wellfleet residents.

The Workshop Process

The Town Project Leaders opened the workshop with a brief introduction and explained the rationale for conducting a joint workshop, noting the shared resources between the two communities, their history of working together, and how a regional approach is needed to address climate change and coastal resiliency. The Project Team then gave a slide presentation with an overview of the day's agenda and purpose of the workshop, MVP program background and the CRB process. Woods Hole Sea Grant/Cape Cod Cooperative Extension staff presented a summary of the state's 2018 climate projections; sea level rise data; bayside sediment transport; recent storm impacts, and a review of priority natural hazards from the 2017 Hazard Mitigation Plans. Local examples of storm damage such as the impacts to Truro's Ballston Beach and Long nook Beach from the winter storms of 2018, and the torrential rain event in summer 2018 that washed a car down an eroded bank at Wellfleet's Cahoon Hollow Beach were presented, as well as a comparison to historic storm events. The presenters explained that the January 2018 storm water-level broke the record 1978 storm water level only due to rising sea levels. Transect data from the latest FEMA Flood Insurance study showed that the difference between the water level of a 10% annual chance storm and 1% annual chance storm is only 1.3' in some areas. This value was compared to sea level rise projections (provided by the state) to show that such sea level increase is predicted to occur relatively soon.

The presentation also described coastal erosion in the context of a sediment budget described by research by the Center for Coastal Studies (2013), which indicated areas of diverging sediment transport and likely erosional areas. The presentation included a suite of climate variables downscaled to the Barnstable County watershed, and introduced the "Resilient MA" website's interactive map for viewing sea level rise, storm surge, etc. Specific climate change projections shared with the group include: temperature, days over 95 degrees, sea level rise, and the increase in heavy precipitation events (combined with the 12% increase in the 100-year storm from 2008 to 2017). Sea level rise projections were integrated with the CCC's online SLR Viewer to show inundation extents in Wellfleet Harbor at various scenarios and timeframes. (See Appendix for presentation slides.)

Following a brief discussion about climate data and modelling, the project team instructed the participants on the first small-group exercise for the day.

Participants sat at one of four discussion group tables: one all-Truro table ("A"); two all-Wellfleet ("C" and "D"); and one "mixed" table with Wellfleet, Truro and the NPS ("B") - for the duration of the workshop. Each table had a facilitator (Project Team member) and a scribe (either Project Team member or Core Team Lead). A base map of each community with critical town information and infrastructure was provided at each table. The maps included roads; critical facilities identified in the towns' 2017 hazard plans; FEMA flood zones, 3-foot sea level rise delineation; and historic shoreline delineation. Each table also had a laptop computer loaded with a data viewer developed by the Cape Cod Commission that provides climate and demographic data. An easel with a blank poster size "Risk Matrix" for the group to fill out was at each table.

Each table developed its own risk matrix through facilitated “small team” exercises and later worked together as a large team with all stakeholders to consolidate information (See Appendix for completed risk matrices.) The combination of the Risk Matrix and the base map provided decision-support and risk visualization to enable stakeholders to identify the community’s strengths and vulnerabilities and prioritize actions to reinforce strengths or mitigate vulnerabilities. The process resulted in informed input, shared experiences, and dialogue among stakeholders.

Top Hazards

Using the base maps as a guide, each small team engaged in a facilitated discussion to identify what they consider to be the top four hazards that pose the greatest current and future threats to Wellfleet and Truro. A slide showing the top hazards the communities selected in their Hazard Mitigation Plan was projected on the screen for reference. To help each group determine priority hazards, facilitators asked participants to consider where, how often, and in what ways hazards have impacted the community; what hazards are impacting the community currently; what effects these hazards might have in the future; what is exposed to hazards and climate threats; what have been the impacts to municipal operations and budgets, potential planning and mitigation efforts; and other concerns/considerations related to impacts.

Strengths and Vulnerabilities

Following the hazards discussion, the groups identified infrastructural, societal, and environmental features that represent either a vulnerability or a strength to the community in the face of anticipated climate change hazards. Participants marked these features on the base maps and the scribe listed them on the risk matrix. In addition to the features, participants were asked to indicate their location, ownership, and whether they are a strength or vulnerability (or both) for the town. The exercise concluded with each group reporting out its priority hazards and the vulnerable features and strengths.

Actions

After a lunch provided by the Town of Wellfleet the workshop attendees continued their work on the second small-group exercise to develop a list of actions to address/mitigate the vulnerabilities and support/enhance the strengths. Action items were framed as either: strategies to protect vulnerable features in the community from negative impacts or ways to better use a community strength. In addition to developing the actions, the groups were tasked with identifying a timeframe for their implementation (short, long, ongoing) and priority (high, medium, low). The final task for the small group exercise was to choose three highest priority actions and report out to the large group.

As groups reported their top priority actions, a Project Team scribe wrote them on a poster size flip chart and posted each table’s top actions on the wall for the room to see. Following the presentation of each group’s priorities, stakeholders together with the workshop facilitator combined duplicative suggestions to create a final list of priority actions that the towns should embark upon to increase the resilience of the community in the face of anticipated climate change impacts.

Workshop Results – Stakeholder Input

The results of each stage of the workshop discussions are presented in the subsequent sections of this report. In addition, **Attachments A-D** show the Risk Matrices produced by each of the four discussion groups. **Attachments E-H** show the base maps with notations from each table. **Attachment I** provides a matrix compilation of all the high priority actions from the four discussion groups. The top priorities from each small group discussion are indicated with **bold** font.

2. Top Hazards of Concern

The small teams discussed whether top hazards should be identified as: those with the most impact, such as a hurricane; those that occur more frequently such as flooding or high winds; or hazards that the town was least prepared for or would impact the town's budget and/or impact the most people. Stakeholders also felt that there was overlap among the top hazards, such as high winds and hurricanes, or nor'easters and winter weather. Coastal erosion, flooding, sea level rise, and severe/extreme weather and storms were identified as the top hazards.

The following list represents all the top hazards reported by the four discussion groups:

- Flooding
- Sea level rise
- Coastal erosion
- Extreme/severe weather
- High winds/hurricane
- Ocean acidification
- Climate change

3. Current Concerns and Challenges Presented by Hazards

Addressing climate change impacts is an urgent matter for these neighboring Outer Cape communities, whose economies depend heavily on coastal tourism, shellfish aquaculture (Wellfleet, in particular), fin-fishing, and the continued availability of these resources and access to them. The towns are vulnerable to flooding, storm surges, coastal erosion, and sea level rise that threatens the built environment, drinking water aquifer, biodiversity, and natural resources. In recent years, the towns have experienced major coastal storm erosion from increased wind and wave action; witnessed higher storm surges and overtopping of local roads, experienced flooding from heavier rain events, salt water intrusion damage to several drinking water wells, and power outages during extended summer heat waves and winter storms.

- Coastal erosion: Erosion is a top concern in both communities. Storms in recent years have caused increased erosion on both bayside and Atlantic beaches, resulting in damage to homes, beach parking lots, and roads. Coastal tourism is a key economic asset to both communities, with the Outer Cape beaches a primary attraction. As beach parking lots erode, and access and parking spaces are lost, the towns will need to develop policies and plans to address the issue. Beach parking is a significant source of revenue. Private building (construction and re-development) continues to occur in flood prone areas and in fragile/vulnerable areas, with local boards unable to protect these resources under the existing regulatory framework.

- Aquaculture, shellfish beds and resources: Wellfleet's shellfishing industry is a key economic assets. Aquaculture farms, shellfish beds and water resources are vulnerable to contamination from subsurface sewage disposal systems and ground water rise, stormwater run-off from extreme storms, ocean acidification, and warmer water temperatures. Warmer waters increase predation, support species shifts, and increase problems with infectious diseases such as the *Vibrio* bacteria.
- Low-lying roads and culverts: Recent winter storms, nor'easters, and extreme rain events have flooded town roads in Wellfleet and Truro impacting access and private and public properties. East Commercial Street in downtown Wellfleet, Kendrick Avenue, and Indian Neck were flooded during strong storms in 2018; Mill Pond Road and Truro Center Road over-washed in 2 storm events. Route 6 serves as the primary travel corridor on the Outer Cape with no secondary route/road alternatives in some locations. Several undersized and damaged culverts have contributed to flooding events.
- Drinking water: Most of Wellfleet and Truro rely on private wells for drinking water. Salt and fresh water inundation from storm surge has damaged private drinking water wells in Truro and Wellfleet by over-wash. Continued storm surges and well damage could cause residents to lose their drinking water supply. In addition, homes dependent on private wells have no water during power outages. The communities may need to consider expansion of the public water supply and infrastructure, or improved access to alternative power sources.
- Seasonality: Both Wellfleet and Truro experience an exponential increase in population (from 2700 and 2175 respectively to an estimated 15,000-20,000) in the summer months. The increase in summer residents increases the level of need for emergency response, public education, and population management during storm events. Additionally, many of the features that attract the summer populations are vulnerable to the identified hazards, posing a challenge between natural resources, hazard management, and the economic value of summer populations, beaches, and seasonal housing in vulnerable locations. In addition, the seasonality of the population creates challenges for public officials in their efforts to educate and inform the community about hazard and climate change impacts and resiliency planning. A significant percentage of the population is out of town half of the year and is not as well informed on current conditions and increasing impacts from climate change.
- Age of population: The average age of Wellfleet and Truro residents is 58 years. The population continues to age and have adjusted needs, such as medical attention, access to medication, mobility challenges, and others. During a storm event, special attention needs to be paid to these needs of the aging population.
- Land protection: Development in sensitive areas like floodplains has contributed to a significant amount of the towns' vulnerability. Structures have been damaged and some have been demolished and rebuilt in these areas. Continued development in these areas may not be viable long-term.

- **Neighborhoods:** The Beach Point area of Truro and Wellfleet's Mayo beach area present special challenges because they are at particular risk to flooding. Beach Point is a densely populated stretch of developed beach-front which is a barrier beach, and completely within the FEMA mapped flood plain. Beach Point extends 2.5 miles from the Knowles Crossing public water supply well (which supplies Provincetown with municipal water) to the Provincetown line. Beach Point includes single family homes, motels and condominium complexes.

Wellfleet's Mayo Beach area is also a barrier beach, also entirely in the flood plain, and it abuts the Wellfleet Town pier and Wellfleet Harbor. It is home to a densely developed neighborhood and includes single family residences, the Harborside Village mobile home park, Cottage Colonies, condominiums and a 200 + seat restaurant.

- **Electrical supply:** There have been several prolonged power outages in Wellfleet and Truro during times of high winds, storm events, and extreme heat. Private wells rely on power to run.

4. Current Strengths and Assets

The discussion groups/tables identified numerous of strengths and assets within the communities for improving local and regional resilience to climate change impacts. Some of the strengths were also considered to be weaknesses or have aspects that are vulnerable as well.

These include:

Infrastructural Features

- Wellfleet Harbor and marina (also vulnerability – also societal and environmental strength)
- Provincetown regional shelter/ Barnstable County Sheltering Plan
- Helicopter pad at Marconi
- Phone/call boxes at beaches (coming soon Summer 2019)
- Mayo Beach
- Beach Point
- Drinking water- public water supply and private wells
- Shellfish infrastructure

Societal Features

- Inter-governmental cooperation, government agencies: CCNS, CCC
- NGOs: Center for Coastal Studies, Friends of Herring River, Friends of CCNS, IFAW, Audubon, and Conservation Trusts, etc.
- Highland Center
- Public safety
- Farming/Agriculture
- Finishing
- First responders
- EMT training
- Councils on Aging
- AmeriCorps
- Church shelters and elementary school shelter
- Shellfishing and aquaculture

- Community volunteers – many of whom have expertise and energy
- Neighborhood associations
- Sense of community on the Outer Cape and local population
- Outer Cape pharmacy
- Shellfish infrastructure
- Regional shelter system
- Local businesses
- Public safety network/police contacts for vulnerable population

Environmental Features

- Wetlands and marshes
- Beaches, dunes, and coastal banks,
- Barrier beaches – Mayo Beach and Beach Point
- Herring River restoration project
- Mayo Creek restoration
- Conservation regulations and bylaws
- Wellfleet “Gut”
- Pamet River and Ballston Beach
- Longnook Beach
- Shellfish and finfish resources
- Cape Cod National Seashore
- Boards of Health and Conservation Commissions

5. Top Recommendations to Improve Resilience

Following the presentation of each group’s priorities, workshop participants, along with the workshop facilitator, combined duplicative suggestions to create a final list of suggestions. The top five action items were chosen as highest priority and are listed below:

- Pursue funding for culvert replacement and salt marsh restoration.
- Identify low-lying roads and beach parking lots susceptible to erosion and develop and implement a plan to address road flooding problems and beach access issues. we add to this one to include beach access and parking lots susceptible to erosion?
- Expand and improve communication system, electrical and infrastructure network through improved access throughout the communities.
- Develop an Outer Cape grassroots education and outreach strategy to address climate resilience
- Pursue bylaw and regulatory changes to address resilience
- Development plan for nutrient reduction

6. Conclusion and Next Steps

Wellfleet and Truro will continue the MVP certification process by presenting and distributing this report to the public at a formal public information and listening session, scheduled for May 29, 2019 at the Truro Public Library. This session will provide an opportunity for stakeholders to review the draft report and for any member of the interested public to learn, ask questions, and provide feedback about the

March 12, 2019 MVP Workshop and the recommended highest priority actions that emerged from that workshop.

7. CRB Workshop Project Team

MVP Provider – Cape Cod Commission

- Martha Hevenor, CCC Planner II
- Sharon Rooney, CCC Chief Planner
- Chloe Schaefer, CCC Community Design Planner
- Heather McElroy, CCC Natural Resources Manager
- Anne Reynolds, CCC GIS Director
- Erin Perry, CCC Deputy Director
- Shannon Hulst Jarbeau, Cape Cod Cooperative Extension & Woods Hole Sea Grant – Floodplain Specialist and CFM Coordinator
- Greg Berman, Woods Hole Sea Grant & Cape Cod Cooperative Extension - Coastal Processes Specialist

MVP Provider – Woods Hole Sea Grant/Cape Cod Cooperative Extension

Woods Hole Sea Grant/Cape Cod Cooperative Extension staff included the following:

- Greg Berman - Coastal Processes Specialist
- Shannon Jarbeau - Floodplain Specialist & CRS Coordinator

Project Sponsors

- Wellfleet Conservation Commission
- Truro Conservation Commission

List of Participants

First	Last	Role
Denny	O'Connell	Wellfleet Conservation Trust
John	Portnoy	Conservation Commission, Wellfleet
Jarrod	Cabral	Truro DPW
Jordan	Fleming	Americorps Cape Cod
Emily	Beebe	Truro Health & Conservation
Carol	Magenen	Energy Committee
Michael	Fisher	Conservation Commission & Conservation Trust, Wellfleet
Bob	Weinstein	Truro Selectboard
Susan	Areson	Truro ZBA and Finance
Rachel	St. Germain	Americorps-Vista- HOW
Arozana	Davis	Town of Truro
Lauren	Kaufmann	Truro Historical Society

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Dave	Koonce	Wellfleet Conservation Trust
Jim	Hood	Wellfleet Water Commissioners
Hillary	Greenberg	Wellfleet Health & Conservation
Nancy	Civetta	Wellfleet Shellfish Constable
Bruce	Bolyn	Truro Planning Board
Lauren	McKean	Cape Cod National Seashore
Jean	Leidenfrost	Wellfleet DPW
Chris	Clark	Local Comprehensive Plan Comm. Truro
Daniel	Holt	Truro
Joan	Holt	Truro
Dick	Elkin	Wellfleet Energy Committee
Joe	Powers	Town of Wellfleet/Asst TA
John	Cumbler	Wellfleet
Janet	Drohan	Wellfleet Board of Health
Evelyn	Jackson	Wellfleet
Becky	Rosenberg	Wellfleet Recreation Dept
Tim	Collins	Truro Fire Chief
Maureen	Burgess	Truro Selectboard
Kristin	Reed	Truro Selectboard
Suzanne	Grout Thomas	Town of Wellfleet
Lydia	Vivante	Wellfleet
Gary	Joseph	Friends of Herring River
Jude	Ahearn	Wellfleet
Kathleen	Bacon	Wellfleet Selectboard
Ron	Fisette	Wellfleet Police Chief
Justin	Post	Town of Wellfleet Building Inspector
Adrienne	Tardif	Americorps -Truro & Wellfleet Health & Conservation

Attachments A – D Discussion Matrices from the four discussion groups

Attachment E-H : Base Maps with annotations from each small group

Attachment I-: Master Matrix of High Priority Actions Reported By Each Group

Attachment J: Workshop PowerPoint presentation slides

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